

A SHORT REVIEW OF DYSLOBUS LeCONTE, A GENUS
OF BROAD-NOSED WEEVILS OF THE SUBFAMILY
OTIORHYNCHINÆ WITH DESCRIPTIONS
OF NEW SPECIES

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This paper was written primarily to assist certain field workers who wished to know what weevils they were dealing with and at the same time to straighten out the confusion that has existed for some time with regard to many of our species. In this work I have not only had the use of my own very large collection but the material of the California Academy of Sciences including the collection of my associate, Dr. F. E. Blaisdell, extensive series submitted by Mr. Wm. W. Baker and Mr. Joseph Wilcox of Puyallup, Washington, and the aid of Mr. L. L. Buchanan of the U. S. National Museum who has generously and painstakingly compared many of my specimens with the Casey and Pierce types. I am also under obligations to Dr. J. M. Aldrich and the U. S. National Museum for the loan of two paratypes.

Genus DYSLOBUS LeConte

The genus as used here includes not only *Dyslobus* LeConte, but *Amnesia* Horn, *Tricomigus* Horn and *Melamorphus* Horn. Pierce¹ united a portion of *Amnesia* with *Dyslobus* and the remainder with *Tricomigus* under *Melamorphus*... The species of *Amnesia* united under the last name are less differentiated from the more typical species united with *Dyslobus* than are these typical *Amnesia* from *Dyslobus*. That being the case it seems best to unite them all as a part of one great complex, as they are, under one name. They cannot be separated by any fundamental characters and their geographical distribution confirms their common relationship.

SYNOPTIC TABLE

1. Funicular segments elongate, always longer than broad, humeral angles well defined, larger species usually over 8 mm. in length.....2
- Only the first two or three funicular segments elongate, the remainder moniliform and generally broader than long.....11

¹ Miscellaneous Contributions to the knowledge of the weevils of the Families Attelabinae and Brachyrhinidae, by W. Dwight Pierce, Proc. U. S. Nat. Mus., vol. 45, 1913, pp. 382-389.

2. Pronotum more or less smooth and even, not granulate, elytral setæ not conspicuous, very little elevated (*Dyslobus s. str.*)..3
Pronotum more or less uneven, verrucose or granulate, elytral intervals alternately more elevated, especially posteriorly....8
3. Elytral intervals not distinctly alternating in degree of convexity and without tubercles at summit of declivity, serial punctures squamigerous.....4
Elytral intervals generally alternating in degree of convexity posteriorly and with well marked tubercles at summit of declivity, serial punctures setigerous.....7
4. Elytral declivity abrupt, almost straight and nearly vertical....5
Elytral declivity gradually formed, the suture broadly and evenly arcuate from disk to apex of elytra.....6
5. Color sombre, brown, more or less marbled with white, serial punctures of elytra of moderate size and moderately impressed, hind tibiæ very strongly bent near the apex in the male, length 9-15 mm.; average about 11 mm. The Sierra Nevada and N. Calif. to Crater Lake, Ore.....*segnis* (Lec.)
Color more or less brilliantly metallic, the scales varying from silver gray to green, serial punctures of elytra coarse and deep, hind tibiæ only very feebly arcuate towards apex in male; length 11-15 mm. W. Wash. and N.W. Ore., especially near coast.....*lecontei* Csy.
6. Color light brown or chocolate brown, generally marbled with white, the scales submetallic, serial punctures of elytra fine and close together, the striæ better defined than in preceding species, hind tibiæ only very feebly arcuate towards apex in male; length 8-13 mm. High Cascades from middle Wash. to Mt. Hood, Ore.....*simplex* n. sp.
7. Color silver gray mottled with brown, serial punctures of elytra of moderate size and well spaced, the tubercles at summit of declivity variable in size, small and approximate to large and divergent, hind tibiæ quite strongly bent near apex in male; length 10-13 mm. N. Cascades from Mt. Hood, Ore. into Br. Col., Idaho and Yellowstone Pk.....*verrucifer* Csy.
8. Color gray and somewhat greenish, scales submetallic, pronotum more or less verrucose especially at sides, elytral punctures large, deep, well spaced and squamigerous, the elytral declivity abrupt and sutural prominence keeled, all tibiæ denticulate, the hind only feebly arcuate towards apex in male; length 10-12 mm. Coastal mountains of Humboldt Co., Calif.....*denticulatus* Pierce
Color gray or brown, pronotum with distinct, well spaced granules, elytral punctures setigerous.....9
9. Both sexes much alike, robust, granules rather fine and restricted to pronotum, humeral angles moderately prominent, surface of elytra even and uniformly and densely clothed with large scales, sutural prominence feeble, all

- tibiæ denticulate; length 8-12 mm. W. Br. Col.; Wash., Ore., N.W. Calif.....*granicollis* (Lec.)
 Sexes dissimilar, males narrower, with elytra little wider than prothorax, females about one-third wider, humeral angles very prominent.....10
10. Color brown, granules coarse and scattered over elytra (finer) as well as pronotum, scales finer and not uniformly dispersed, vittately arranged on elytra, sutural prominence at summit of apical declivity very marked, odd intervals of elytra very much elevated, anterior tibiæ denticulate; length 9-12 mm. Coastal region of middle Calif., Sonoma to Santa Cruz Co.....*granicollis* subsp. *tumidus* Csy.
 Color dull black, granules large and close together, practically restricted to pronotum, odd intervals of elytra but little elevated in front of declivity, the sutural prominence reduced, pile as well as scales, quite dense, the former erect; length 11.5-12 mm. Yorkville, Mendocino Co., Calif.....
*granicollis vestitus* n. subsp.
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14. Scales golden or cupreous, somewhat elongate and semierect; the setæ on head, pronotum and alternate elytral intervals very dense and semierect giving insect a shaggy appearance; pronotum with distinct yet sparse granules, longitudinally sulcate at middle and with shallow impressions on either side; elytra with prominent humeral angles, alternate intervals markedly elevated, declivity abrupt, serial punctures moderate in size and squamigerous; two small prosternal tubercles behind anterior legs; length 7.5 mm. Eureka, Calif.
*squamipunctatus* Pierce

- Scales golden, broad, closely and densely applied to elytra, elsewhere sparse; the setæ short and much inclined, not particularly evident; pronotum verrucose and with distinct longitudinal sulcus; elytra with humeral angles well defined but not prominent, odd intervals well elevated, the striæ distinctly impressed with strial punctures large, deep, setigerous, declivity rounded, a faint prosternal tubercle behind forelegs; length 5-7 mm. Eastern part of Willamette Valley, Ore.....*wilcoxi* n. sp.
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17. Pile of upper surface long, fine and suberect.....18
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18. General color brown, dull, with sides of prothorax lighter and light patches near humeri and on apical declivity, pronotum distinctly rugose, or verrucose. Elytral striæ and strial punctures fine, pile of upper surface long, fine and quite erect, length 6-8 mm. E. Wash. and north central Oregon.....*ursinus* (Horn)
 General color brown or gray, light areas vague, pronotum verrucose, elytral striæ well impressed and punctures coarse and deeply impressed, pile of upper surface long, dense and erect; length 6-8 mm. Coastal area of middle Calif., San Francisco to Monterey.....*raucus* (Horn)
19. Color dark brown, scales submetallic, lighter on alternate intervals, pronotum verrucose, elytral striæ fine, punctures coarse and deep; length 7 mm. Near Salt Lake City, Utah.
*tanneri* n. sp.
20. Color brown to gray with sides of prothorax and elytra somewhat gray and several gray patches at summit of elytral declivity, elytral striæ fine and punctures rather small, pile of upper surface long, fine and quite erect; length 7 mm. Foothills of Calaveras Co., Calif.....*blaisdelli* n. sp.
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 Pronotum distinctly rugulose, granulate or verrucose.....23
23. Upper surface clothed with rather long, semierect pile.....24
 Upper surface clothed with conspicuous but rather short setæ, the pronotum with low, flat granules having a small pit at apex, general form somewhat narrow and elongate, the scales submetallic and varying from golden brown to green, lighter along sides of prothorax and in patches scattered over elytra, the setæ short and much inclined on pronotum and disk of elytra, longer and semierect on declivity, serial punctures moderate in size and well impressed, striæ vague, two small tubercles on prosternum just behind and between forelegs; length 7-10 mm. Extreme coastal belt from Astoria, Ore. to Crescent City, Calif.....*bakeri* n. sp.
24. Species in general dark brown.....25
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25. Granules of prothorax close together, flattened and overlaid with scales. Species short and robust, dark brown, silvery at sides of prothorax, the elytral striæ finely, distinctly impressed and finely punctured, pile fine, long, dense and erect, scales of elytra so arranged as to give a granular appearance, the elytral declivity rather abrupt; length 8 mm. S. Ore., N. Calif.....*granulatus* Csy.
 Granules of prothorax not overlaid with scales, and generally with well marked pit at apex, species more elongate and usually larger.....26
26. Color dark brown, scales more or less cupreous, pile fine, dense, of moderate length and semierect; prothorax rather suddenly constricted in front, pronotal granules, flattened, irregular and rather close together, the propleuræ very rugose, at times strigose; strial punctures of elytra coarse and deep, one-half width of intervals; length 6-9 mm. San Francisco bay region, Calif.....*deciduus* (Horn)
 Color an earthy brown, scales dull, rarely metallic, pile fine, long and erect; prothorax gradually narrowed in front and behind, pronotal granules distinct, conical, shining, and well separated and extending down on to the propleuræ; strial punctures rather fine, never one-half width of intervals; length 8-11 mm. Alameda and other San Francisco bay counties, Calif.....*sordidus* (Horn)

27. General color dark brown, the prothorax with black vitta at center and along sides, silvery patches also along side margin of prothorax behind and on sides and declivity of elytra, a tessellated arrangement of the scales, darker and lighter, on alternate elytral intervals.....28
 General color gray, somewhat vittate on prothorax as well as elytra, scales large and closely appressed, pile brown, moderately long, fine and semierect, elytral striæ well marked and with moderately large, rather closely placed punctures; length 5-8 mm. Mont., Alberta, E. Wash...*alternatus* (Horn)
28. Head clothed with short pile and long hair-like scales, the pronotum with elongate scales and the elytra with round, beadlike scales, the general pile brown or gray, of moderate length and somewhat inclined; length 6 mm. San Francisco, Calif.....*tessellatus* (Csy.)
 Head, prothorax and elytra densely clothed with broad, flat scales, semierect on prothorax and elytra, the pile generally long, darker and more erect than in preceding, the elytral declivity more abrupt, otherwise very similar; length 6-8 mm. San Francisco, Calif. (a sand dweller).....*franciscanus* n. sp.
29. Species elongate, pronotum strongly granulate-tuberculate, the tubercles punctured.....30
 Species less elongate, more robust, pronotum not strongly granulate-tuberculate, humeral angles small, but wider than prothorax at base, scales silvery, pile long, fine and black and white, appendages reddish, head and beak roughly punctate and tuberculate, strial punctures long, shallow and approximate; length 6.5 mm., width 2 mm. Riparia, Wash.*nigrescens* (Pierce)
30. Pile long, dense and black, scales black, humeral angles rectangular, broader than base of prothorax, appendage piceorufous, beak roughly sculptured, strial punctures of elytra large, deeply impressed and not closely placed; length 8 mm. Nevada.....*niger* (Horn)
 Pile short and sparse on head and prothorax, absent on disk of elytra and of moderate length, setigerous and inclined on elytral declivity, scales black with a few patches of silvery ones on fifth interval posteriorly, appendages brown, beak coarsely punctured and finely carinate at middle, strial punctures of elytra large, deep, and rather closely placed; length 9.5 mm., breadth 4 mm. Kings River, Fresno Co., Calif., Alt. 5000 ft.....*dolorosus* n. sp.

DYSLOBUS SEGNIS (LeConte)

This, the type species and one of the larger members of the genus, is always to be found in the coniferous forests of the

Sierra Nevada Mountains and those of northern California and north as far as Crater Lake, Oregon. It has a preference for the foliage of the true firs. Normally the pronotum is quite smooth though finely punctured and minutely granulate when abraded. In a specimen from the southern part of its range, Sequoia National Park, the pronotum is markedly granular tuberculate.

DYSLOBUS LECONTEI Casey

This species is large like the preceding but generally more elongate and proportionally narrower. It is a species of the more humid area of the Northwest.

Dyslobus simplex Van Dyke, new species

Rather large, moderately robust, black, densely clothed with golden brown or cupreous scales and very short, much inclined setæ on the rostrum and elytral declivity. Head rather finely, closely punctured, the punctures generally concealed by the scales; rostrum twice as long as broad, separated from front by a shallow transverse impression, broadly shallowly sulcate towards apex and with fine median carina; eyes much flattened, hardly projecting beyond sides of head, antennæ with scape reaching hind margin of eyes, funicle with first and second segments elongate, third to sixth much shorter and gradually diminishing in length though always longer than broad, seventh somewhat longer and broader than sixth, the club fusiform. Prothorax barely broader than long, with sides slightly arcuate, faintly constricted near apex, broadest in front of middle, the disk, like the head, rather finely, closely punctured but with sculpturing concealed by scales, postocular lobes but moderately developed and finely fimbriate. Elytra one-third longer than broad in male, slightly broader in female and in the latter broader than prothorax, humeral angles not well defined, sides of elytra arcuate to base, striæ fine, slightly impressed and with punctures of moderate size, approximate and each containing a small scale, intervals flat or barely convex and equally elevated, suture evenly arcuate from disk to apex of elytra and without keel at summit of declivity. Beneath regularly but not densely squamulose and finely pilose, first ventral segment sulcate at center, deeper in male, the fifth narrowly sulcate in male and subcarinate in female. Anterior tibiæ denticulate and arcuate towards apex, median simple and straight, hind tibiæ simple and feebly arcuate towards apex, all tibiæ mucronate. Length 11 mm., breadth 3.5 mm.

Holotype male (No. 3664), allotype female (No. 3665, Mus. Calif. Acad. Sci.) and several designated paratypes from a series of 170 specimens. The type locality is Homestead Inn,

Mt. Hood, Oregon, July 3, 1927, but I have also taken specimens on Mt. Adams, Wash., Hood River and The Dalles, Oregon, and have studied others from Easton, Wash., belonging to the Koebele Collection.

This species belongs near *segnis* but may readily be separated in general by its smaller size, brighter appearance, lack of well defined humeral angles, even curvature of elytra and but slightly angulated posterior tibiæ in males. It is also geographically isolated being a Cascade Mountain species while *segnis* is primarily a California mountain species. On Mt. Hood it is very common, being found upon almost every available tree or shrub, especially in old logged over areas.

DYSLOBUS VERRUCIFER Casey

This large, distinctly gray, somewhat tessellated species with well marked tubercles at the summit of the apical declivity of the elytra, is quite northern in its distribution being found in the northern Cascades and northern Rocky Mountains. In the Cascades it is most frequent at high levels, chiefly in the forest of alpine hemlock not far below snow line but in Idaho and in Yellowstone Park it drops to lower altitudes. The tubercle is quite variable, small and single or large and double. *D. bituberculatus* Pierce is nothing but a form with larger tubercles. Mr. Buchanan has accurately compared some of my specimens with the type and verified my surmise.

DYSLOBUS DENTICULATUS Pierce

This insect is quite similar to *lecontei* and in fact is a derivative of the same. Like it, it is a coastal species, has the serial punctures of the elytra coarse, giving lodgement to squamae and the scaly covering metallic and generally greenish. It is, however, readily separated by the more prominent humeral angles, more convex elytral intervals with a tendency to be alternately more evidently elevated, especially posteriorly, and the pronotum tuberculate, a character overlooked by Pierce. Collecting in intermediate territory may show that this species is but an extreme of *lecontei*.

DYSLOBUS GRANICOLLIS (LeConte)

This species with its varieties is the most widely dispersed of the genus, ranging from western British Columbia as far south

as Monterey Bay, in California, in fact throughout most of the typical Vancouverian faunal region. In its typical form, it extends as far south as Humboldt County, California. From here south, it begins to break up into minor races, chiefly characterized by the males becoming more elongate; with the humeri more prominent, the elytral intervals alternately more elevated and tuberculate at the summit of the declivity and with as pronounced a development of the granules on the elytra as there is on the pronotum. *D. sculptilis* (Casey) and *discors* (Casey) are variants of such slightly differentiated features that they should be suppressed as synonymous. *D. debilis* (Casey) is but a depauperized, narrower variety. It simulates *tumida* but is smaller and lacks the elytral granules. *D. tumida* Casey is, however, a well defined extreme which because of great development of the elytral humeri, and alternate intervals, with tubercles at summit of declivity and elytral granules, should remain as a named subspecies. A second subspecies which will now be defined is also worthy of being designated.

Dyslobus granicollis vestitus Van Dyke, new subsp.

This subspecies is black or very dark brown, scales large and very dull as is the body color. It resembles the typical *granicollis* in having the granules confined to the prothorax, the alternate elytral intervals but little more elevated than the others, and the scales of the elytra densely placed. Its distinctive features other than color, are the coarsely and densely granulate prothorax, the granules almost twice as numerous as in typical forms, the great reduction of pronotal scales as a result; and the dense clothure of the upper surface with short, semierect black hair, the vestiture fully twice as abundant, more regular and more erect than in any of the other phases of the species. Male, length 11.5 mm., breadth 4.25; female, length 12 mm., breadth 5 mm.

Holotype male (No. 3666), allotype female (No. 3667), Mus. Calif. Acad. Sci.), and sixteen paratypes collected by Mr. E. R. Leach and Mr. E. P. Van Duzee at Yorkville, Mendocino Co., Calif., June 10, 1921, and various other dates. Most of the paratypes are now in the collections of Mr. E. C. Zimmerman and Mr. Leach through whose kindness I received several of my specimens.

Dyslobus viridescens Van Dyke, new species

Similar in form and general appearance to *granicollis* but generally smaller, with the majority of the scales proportionately smaller and somewhat green, the granules of prothorax much suppressed, rarely appearing above the general surface, the outer segments of the antennal funicle moniliform, not elongate, and the serial punctures of elytra brilliantly green and squamigerous. Head coarsely punctured, moderately clothed with elongate green scales; rostrum two and a half times as long as broad, rugose punctate, depressed and shallowly sulcate in front, and separated from head by a slight transverse impression; eyes flattened; antennal scape reaching hind margin of eyes, first and second funicular segments elongate, third slightly longer than broad, the club fusiform and twice as long as broad. Prothorax a bit broader than long with or without median sulcus and laterally irregularly impressed. Elytra two-fifths or over broader than long, the humeral angles well defined, somewhat auriculate, odd intervals well elevated. Beneath punctate granulate, the males with first abdominal segment slightly sulcate, the females with last segment obtusely carinate. Anterior tibiæ denticulate and strongly bent near apex. Length 9 mm., breadth 3.25 mm. in male and 4 mm. in female.

Holotype male (No. 3668), allotype female (No. 3669, Mus. Calif. Acad. Sci.) and four paratypes, the first three from Cannon Beach, Ore., June 12 and 15, 1923, the others from Olney (near Astoria), Ore., June 13-15, 1925. I have also closely associated with these, four other specimens, one from Cannon Beach, two from Olney and one from the Forks, Wash., July 3, 1920, collected by E. P. Van Duzee, which only differ from the preceding in having the squamæ in the serial punctures of the elytra, very narrow, practically setigerous.

This species belongs to a group of moderate sized species including besides the above, *squamipunctatus*, *wilcoxi*, and *bakeri*, all somewhat related to *granicollis*, in fact superficially very like the variety *debilis* Casey, of which this species is the closest relative, the others being more divergent.

Dyslobus wilcoxi Van Dyke, new species

Small, robust, piceous, elytra densely clothed with metallic golden brown scales, the remainder of insect somewhat sparsely clothed, the scales beneath slightly greenish, and with short, much inclined setæ. Head sparsely, shallowly punctured, the latter generally concealed beneath the squamæ; rostrum at least twice as long as broad, separated from head by a shallow transverse impression, shallowly sulcate in front and with a well defined median longitudinal carina; eyes much flattened, barely projecting beyond

side margins; antennal scape reaching hind margins of eyes, the first and second funicular segments elongate, the first the longer, the third to sixth short, moniliform, seventh slightly larger, the club fusiform, over twice as long as broad. Prothorax slightly broader than long, sides evenly arcuate from base to apex or barely constricted before apex, broadest at middle, disk regularly verrucose, each tubercle finely punctured at apex and with narrow and sharply defined median longitudinal impression, the postocular lobes well defined and fimbriate. Elytra less than twice as long as wide in male, and about one-fourth longer in female, distinctly broader than prothorax in both sexes, the humeral angles quite prominent, the sides of elytra sinuate before base as well as towards apex, the third, fifth and seventh intervals distinctly more elevated than the alternate ones in the males and slightly more elevated in the females, especially posteriorly, striae slightly impressed and with moderately large punctures, each giving rise to a small seta. Beneath coarsely, rather closely punctured, ventral segment somewhat rugose, especially in males, the prosternum slightly tuberculate behind anterior legs. Males with first ventral segment shallowly sulcate and last ventral convex and often slightly impressed at apex, the females with first ventral non-sulcate and the last ventral obtusely carinate. Anterior tibiae denticulate and slightly bent near apex. Length 7 mm., breadth 2.5 mm. in male and 3.25 in female.

Holotype male (No. 3670), allotype female (No. 3671), Mus. Calif. Acad. Sci., and several designated paratypes from a series of fifty-four specimens collected by J. Wilcox at Lacombe, Oregon, May 27, 1931, and June 7, 1929, mostly on strawberries. Most of the material remains in Mr. Wilcox's hands.

This is one of the smallest of our species and may generally be distinguished by its small size, rather uniform dull golden color above, regularly verrucose pronotum, prominent humeri and elevated alternate elytral intervals. From *bakeri* with which it might be confused, it can be separated by being in general slightly smaller, more uniformly colored, having prominent humeri and lacking the prosternal spine.

DYSLOBUS DECORATUS (LeConte)

This species might also be confused with small specimens of *granicollis*. Its distinctive features are that the pronotum is irregularly tubercular or verrucose with small punctures at the summits of the tubercles, not regularly studded with smooth granules as in *granicollis*, that the elytral intervals are less un-

equally developed and the underside more grossly punctured. It ranges from British Columbia south as far as Trinity Co., California and Plumas Co. in the Sierras. In a race collected at Silverton, Oregon, by Wilson and Mote, the pile is slightly longer and more evident than in normal forms.

DYSLOBUS RAUCUS (Horn)

D. ciliatus Pierce is but a slightly larger phase of the above. Its range is continuous with *raucus* and it possesses no characters to differentiate it. Mr. Buchanan who has made careful comparisons for me, agrees with me entirely in reducing it to synonymy.

Dyslobus tanneri Van Dyke, new species

Of moderate size, robust, piceous, head and pronotum sparsely and elytra densely clothed with metallic scales, generally cupreous in color, and with short, fairly abundant much inclined pile. Head rather coarsely, closely punctured; rostrum twice as long as broad, feebly depressed in front, non-sulcate, with a fine longitudinal carina at middle, and separated from head by a shallow transverse impression; eyes much flattened, hardly projecting beyond side margins of head; the antennæ with scape reaching hind margin of eyes, first and second funicular segments elongate, the following moniliform with the seventh the largest, club fusiform. Prothorax distinctly broader than long, sides arcuate from base almost to apex where narrowly but definitely constricted, disk regularly rugosely tuberculate, postocular lobes poorly developed and finely fimbriate. Elytra not quite a third longer than broad and about the same degree broader than prothorax, the humeral angles prominent, the sides of elytra narrowed and sinuate just posteriorly, striae punctures rather large, well impressed and close together, each with a small seta, intervals all flattened. Beneath rather coarsely punctured, the last ventral bluntly carinate. All tibiae denticulate within. Length 7.5 mm., breadth 3.5 mm.

Holotype (No. 3672, Mus. Calif. Acad. Sci.) a unique collected near Salt Lake, Utah, July, 1927.

This species is intermediate in character between *decoratus* and *ursinus* having rather rigid setæ like the former but fully twice as long and slightly prominent postocular lobes like the latter.

Dyslobus blaisdelli Van Dyke, new species

Rather small, somewhat elongate, piceous, upper surface densely clothed with brown or grayish scales and with moderately long, rather sparse, erect brown pile, a triangular patch of silvery scales

at sides of prothorax extending from middle to base, and silvery patches on the third, fifth and seventh elytral intervals at summit of declivity, the scales of the legs also a silver-green. Head coarsely punctured; the punctures concealed by overlying scales, rostrum twice as long as broad, separated from head by shallow transverse impression, depressed but not definitely sulcate at apex and with narrow and obscure median longitudinal carina; eyes much flattened, protruding but slightly beyond side margins of head; antennal scape reaching hind margin of eyes; first and second funicular segments moderately elongate, the following moniliform with the seventh slightly larger than the preceding, club fusiform and about twice as long as broad. Prothorax at least a fifth broader than long, sides narrowed anteriorly and posteriorly and but slightly arcuate at middle, disk rather coarsely closely punctured like head and with punctures concealed by the scales hence more or less smooth in general, the postocular lobes but poorly defined. Elytra two-fifths longer than broad and almost a third broader than prothorax in female, narrower in male, humeral angles distinct but not prominent, the sides of elytra slightly constricted and sinuate just back of angles, the striæ barely impressed and regular punctured with moderate sized punctures, each with a small seta, the intervals flat. Beneath rather coarsely punctured and also rugose behind, the males with first ventral barely sulcate and last ventral evenly convex, the female with first ventral non-sulcate and last ventral obtusely carinate. Anterior tibiæ distinctly denticulate in males, faintly so in females. Length 7 mm., breadth 2.75 mm. in males and 3 mm. in females.

Holotype male (No. 3673), Licking Fork, Tuolumne River, 2900-3100 feet, June; allotype female (No. 3674, Mus. Calif. Acad. Sci.), Mokelumne Hill, Tuolumne Co., Calif., June, and four paratypes, Davis Meadow, R. R. Flat, near Mokelumne Hill, 2800 feet, June, all collected by Dr. F. E. Blaisdell.

The main characteristics of this species are its sparse yet evident pilosity, smooth pronotum, and very slightly developed though distinct humeral angles.

Dyslobus bakeri Van Dyke, new species

Of moderate size, somewhat elongate, piceous, head and pronotum moderately and elytra densely clothed with variously colored metallic scales, golden, green, silver or brown, and moderately setose, the hairs short, black and much inclined. Head coarsely, closely punctured, the scales in most cases concealing the punctures; rostrum nearly three times as long as broad, separated from head by a shallow, transverse impression, depressed in front and coarsely strigose, with a fine, somewhat obscure median longitudinal carina; eyes rather flattened, projecting but little beyond side margin of head; antennal scape reaching hind margin of eyes,

first and second funicular segments elongate, the following moniliform with the seventh the largest, club fusiform and about twice as long as broad. Prothorax one-fifth broader than long, sides rather evenly arcuate from base to apex, disk coarsely, closely punctured with certain of the punctured areas elevated into pitted tubercles here and there over the surface, and in general with a well defined median longitudinal impression, also several shallow impressions at the sides or in front and back, the postocular lobes poorly developed. Elytra nearly a third longer than broad, one-sixth broader than prothorax in male and fully one-fourth broader in female, humeral angles poorly defined, sides of elytra arcuate to base, striæ hardly impressed but rather regularly and coarsely punctured, each puncture with a greenish metallic seta, the even intervals flat, the odd somewhat convex and generally more prominent especially toward apex. Beneath coarsely punctured, abdomen more or less rugose as well, the prosternum with a pronounced double tubercle posteriorly behind the anterior legs, the males with abdomen in front shallowly sulcate at middle and last ventral generally evenly convex, the females with last ventral obtusely carinate. Anterior tibiæ distinctly, middle and hind obscurely, denticulate, the anterior quite arcuate in front especially in males. Male, length 8 mm., breadth 3 mm.; female, length 9 mm., breadth 4 mm.

Holotype male (No. 3675), allotype female (No. 3676), Mus. Calif. Acad. Sci., and several designated paratypes from a series of over ninety specimens. The types were collected by myself at Marshfield, Ore., June 11 and 14th, 1914. Other specimens have been taken at Cannon Beach, Ore., June, 1927; Walport, Ore., June, 1923, (E. P. Van Duzee); Crescent City, Calif., June 21, 1922; Westport, Wash., Feb. 22, 1932, (W. W. Baker), and March 20, 1932, (J. Wilcox).

This very pretty, somewhat varicolored species seems to be restricted to the extreme coastal belt of Washington and Oregon, extending as far south as Crescent City, Calif. Its most distinctive character is the prosternal tubercle. It could only be confused with *wilcoxi*, or *viridescens* among northern species; the former, however, not only lacks the prosternal tubercle but possesses well defined humeral angles and has the scales of the upper surface of a uniform golden color. The latter also has well defined humeral angles and lacks the prosternal tubercle. The poorly defined humeral angles and elytra rounded at base will also assist in separating *bakeri* from other northern species, all of which have well developed, generally auriculate, humeral angles.

DYSLOBUS GRANULATUS (Casey)

This species ranges throughout northeastern California, extending south along the Sierra foothills as far as Eldorado County, and overlaps into Oregon. The more northern forms are generally dark, with few silvery scales and rather long, fine pile. They link up in the north with *ursinus* (Horn), the latter having the humeral angles prominently developed. In the southern part of its range, in Placer and Eldorado counties, the specimens become lighter in color and more highly decorated, the silvery bands along the sides of prothorax and at the apex of the elytral declivity being quite conspicuous. The pile of these specimens is also generally shorter, sparser and more setose. This species may also become of some economic importance like some of its northern relatives. Mr. H. H. Keifer took one at Bowman, Placer Co., Aug. 23, 1931, on strawberry plants.

DYSLOBUS SORDIDUS (Horn)

Dyslobus (Amnesia) elongatus (Horn) is the male of *sordidus*. As stated previously, field studies have definitely proven this.

Dyslobus franciscanus Van Dyke, new species

Small, robust, piceous, densely clothed above with very large, somewhat obliquely attached scales and moderately long, semierect black pile, the scales in general dark brown but with silvery scales forming a broken line at the sides of prothorax and spots at the sides of elytra and elytral declivity, and black scales arranged in the form of a median and lateral prothoracic stripes and small patches on the elytra chiefly about the elytral declivity. Head closely, coarsely punctured, the punctures concealed by the scales; rostrum two and a half times as long as broad, separated from head by a shallow transverse impression; somewhat flattened and depressed in front; eyes flattened, hardly projecting beyond side margin of head; antennal scape reaching hind margin of eyes, first and second funicular segments elongate, the following moniliform, club about twice as long as broad. Prothorax a bit broader than long, sides broadly arcuate posteriorly, somewhat less so anteriorly and convergent, disk smooth as a result of scaly covering but when denuded granulo-punctate, postocular lobes poorly defined. Elytra almost twice as long as wide in male and about one-third longer in female, somewhat wider than prothorax in males and a third wider in females, humeral angles poorly defined, the sides of elytra evenly rounded to base, striæ finely impressed and finely punctured, each with a minute white seta, the intervals flat. Beneath coarsely punctured and rugose, the first ventral segment

shallowly sulcate in male and the last ventral obtusely carinate in female. Front tibiæ finely denticulate. Male, length 6.5 mm., breadth 2.75 mm.; female, length 7 mm., breadth 3.5 mm.

Holotype male (No. 3677), allotype female (No. 3678), Mus. Calif. Acad. Sci., and several designated paratypes from a series of thirty specimens collected on the margins of the sand dunes near Daly City, a suburb adjacent to the Mission district of San Francisco, Calif., May 11, 1911.

This rather attractive species I at one time took to be *tesselatus* Casey but Mr. Buchanan after comparison pronounced it quite distinct. He has also succeeded in having the U. S. National Museum loan me a paratype in order that I might see the differences myself. At first sight the two appear to be the same species but upon high magnification, the scales of *tessellatus* are found to be narrow, small and flatly attached while in *franciscanus* they are large, broad and generally obliquely attached, giving the appearance of an animal with its fur rubbed the wrong way. It is strange that two such closely related yet very distinct species should be found so near to each other.

Dyslobus dolorosus Van Dyke, new species

Moderate in size, elongate, black, head and elytra densely clothed with moderate sized, closely attached very dark brown, almost black, scales, with here and there a few patches of silvery scales, chiefly on the fifth interval posteriorly, the pronotum with a few minute and scattered setæ and rostrum and elytral declivity with semi-erect setæ of moderate length, legs and underside clothed with rather fine brown hairs. Head coarsely, rather closely punctured, the punctures generally concealed by the scales; rostrum almost three times as long as broad, depressed and shallowly sulcate in front, coarsely rugosely punctate, a fine longitudinal carina at middle, and separated from head by a distinct impression: eyes flattened, hardly projecting beyond side margin of head; antennal scape reaching hind margin of eyes, first and second funicular segments elongate, the following moniliform and transverse, club fusiform and twice as long as wide. Prothorax about a fifth broader than long, sides arcuate, narrowed in front and faintly constricted before apex, disk coarsely, rugose and tuberculate, the tubercles here and there minutely punctured. Elytra slightly more than a third longer than broad and somewhat less than a third broader than prothorax, humeral angles vague, margins of elytra evenly rounded to base, striæ shallowly impressed but the punctures large, well spaced and deeply impressed, the intervals flat, declivity almost vertical but evenly arched at crest. Beneath coarsely, closely punc-

tured and rugose, the last ventral segment broadly, shallowly carinate. Length 9.5 mm., breadth 4.75 mm.

Holotype female (No. 3679), Mus. Calif. Acad. Sci., and one paratype female, collected by myself in the south fork of Kings River Canon, Fresno Co., Calif., altitude 5000 feet, July 4 and 6, 1910.

This almost black and greasy looking species belongs near *niger* (Horn) but the latter is densely clothed with long, black pile, has the humeral angles rectangular and the appendages piceo-rufous.

A PRACTICAL METHOD OF CONTROLLING DENDROCTONUS VALENS LEC.

BY ERIC WALTHER

Golden Gate Park, San Francisco

A recent outbreak of the Red Turpentine Beetle, in Golden Gate Park, of, at first, rather serious proportions, has now been brought under practically complete control. Aside from the usual measures of sanitation, etc., the following method of saving individual pines attacked was found to be highly effective. Essentially, this consisted of the injection into the beetle-burrows of Ethylene-dichloride, whose vapors are highly toxic to all stages of this beetle, equalling in this respect the dangerous and offensive Carbon-bisulphide. Previous to injecting the liquid, which was done by means of a one-ounce medical syringe, the rough, outer bark only was trimmed away with a cooper's adze. Incidentally this served to remove the exuded resin found at the entrance opening, which otherwise would soon stop up the tip of the nozzle. Subsequently all openings, entrance burrow, ventilating holes and all cracks, were stopped up with putty, so as to confine the toxic vapors.

An experience, now extending well over two years, shows, first, that the demonstrated efficiency of this method is over 95%, second, that absolutely no injury to the pines results from the treatments proper, and last, that this particular beetle-epidemic has been completely checked, almost in its inception.

We should be glad to furnish any further information desired, on request directed to us at above address, and expect to publish a more extended statement in the near future.